LESSONS LEARNED BY NAVIGATING THE FULL CIRCLE OF LEARNING ENVIRONMENTS

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Physics
A new learning space = empty room, basic furniture = goals for the course and content
What will make it a great space for learning, teaching, growing?

Start with goals
Keep content
Find ways to see what they see
Assess more effectively

What I learned at a conference
What I read somewhere once
What we talked about in the hall
What I tried but failed to get to work

What goes where?
What do I skip?
How can I pull it all together?
LARGE LECTURE TO DISTANCE CLASS

Furniture in the lecture room

Natural science goals for Mason students

Most content

Quizzes and tests

- Long lectures
- Anonymity
- 50% absent most days

What's new

Discussions

At-home experiments

Formative questions

Personal introductions and pictures

Journals

More opportunity to see into their thinking and misconceptions
DISTANCE TO ACTIVE LEARNING

What moved into the “Ferrari” room

**Natural science goals**
- Astronomy content
- Quizzes
- Tests

What was new
- Group work
- Discussions became Think pair share
- At-home became mini-labs
- Journals
- Group projects
- Portfolios
- Mind maps
- Whiteboard drawings
ALC TO ENTERPRISE 178

What stays

Goals for natural science at Mason!
Astronomy content
Lecture tutorial
Think pair share
reflective writing
portfolio
projects
concept maps
solar system drawings
Mini-activities

What was left behind

White boards
Multiple computer displays
Formalized group work
Most mini-activities
WHAT ALL THESE SPACES TAUGHT ME — THE “KEEPERS!

Keep the focus on the goals! Content too!

More emphasis on the visual

Hands-on activities

Think Pair Share

lecture tutorials

Concept mapping

Connecting learning in this course to their passions

What room comes next?

http://apod.nasa.gov/apod/ap160811.html photo by Goren Strand
EMPOWERING THE RIP SAW


http://www.loc.gov/pictures/item/pa0255.photos.131909p/resource
REENGINEERING THE RIP SAW

https://i.ytimg.com/vi/9_wdRkxT7GI/maxresdefault.jpg

Arborist.com
INNOVATION PRINCIPLES

- It takes trust, courage, and action to be innovative.
- It is hard work but love of learning and respect for students can be motivators.
- Hope for the future can lead to perseverance.

Sung Kyu Kim
Contemporary Concepts of Physics
10,000 students
NEW ENVIRONMENTS AND NEW TECHNIQUES

- Experience in the traditional classroom
  - Our norm: read, think, lecture, discuss, write
- Distance learning can include all of these and more

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GOING FULL CIRCLE

- Returning to the traditional classroom
  - Apply the flipped-classroom concept
  - Augment the learning with on-line resources
  - Surprise the students with variety in learning activities

- There are risks and rewards
  - Evaluations tended to have higher standard deviations
  - There can be consistency in learning and performance
  - Most stakeholders will be more motivated.
SAMPLE TECHNIQUES

Each one, teach one
- Students select from topics and take responsibility
- Everybody learns something and focus is on applying
- Supplement learning where needed

Creating metaphors out of whole cloth
- Each student gets two 1-foot square pieces of fabric
- Create a metaphor for conflict in any way desired
- Tell the story of the metaphor
METAPHORS ABOUT THE MIDDLE EAST

Competition in space
Posted by Yusif Babanli

visual representation of conflict theory
Posted by Dale Vergott
CONFLICT AND CULTURE METAPHORS

Narrative Theory Metaphor
Posted by Claire Nichting

He Lei Hakakā
Posted by Joshua Mahuna

Heather Payne Fabric Metaphor
MIND MAPS
— ORGANIZING IDEAS

What is my practice?
- Rachelle Thompson

How did I get here?
- Alice Peck
CONCEPT MAPS

Yusif Babanli

Joshua Mahuna
EXPERIENCED STUDENT CREATION

Heather Payne’s Mind Map
WHAT WILL YOU PUT IN YOUR TEACHING SPACE?

Take a wad of playdough
Shape a metaphor for something you have tried in teaching that works and you want to keep
Or
Shape something that symbolizes something you really want to try
# Lessons Learned by Navigating the Full Circle of Learning Environments

## Full Circle Principle:
- The learning objectives and results are consistent.
- Traditional or enhanced classroom and distance learning techniques focus on student involvement.
- Distance learning and active classrooms provide additional opportunities that are transferable.
- Techniques practiced in distance and active learning contexts can be brought back to the traditional classroom.

## Assumptions:
- Students learn by doing and thinking independently.
- Multiple teaching techniques enhance learning.
- Applying theory leads to understanding.
- Interleaving information improves retention.
- Creativity enhances thought processes.
- Students learn from each other and outside sources.
- Innovative ideas may not work on the first attempt.

## Tools and Processes:
- **Mapping** - Fabric Metaphor
- **Retention** - Aesthetics

## References:
- **Mapping** - *How to Think Like Leonardo da Vinci: Seven Steps to Genius Every Day* by Michael J. Gelb
- **Fabric Metaphor** - *Engaging Imagination: Helping Students Become Creative and Reflective Thinkers 1st Edition* by Alison James, Stephen D. Brookfield

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